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MEMORANDUM

To: Air Quality Permitting Staff

From: Kenneth Ratzman, Assistant Director, Air Quality Regulation and Planning

Date: March 12, 2018

Subject: Reporting Thresholds for Inclusion in Facility Specific Requirements

Attached is the procedure for including emission limits in facility specific requirements of Air Quality Permits. All Air Quality Permitting Staff is directed to use this guidance for all permits currently under review. These procedures do not change existing regulatory requirements but do address situations where errors may have been made in the past. Questions regarding this procedure should be directed to your immediate supervisor.

I. INTRODUCTION

This document provides guidance on placing contaminant emission rates in the compliance plan and addressing situations in the compliance plan when there are air contaminants emitted below their reporting thresholds. These guidelines are applicable to compliance plans developed for both emission units and batch plants. The determination of what hourly and annual emissions to include in the compliance plan does not impact the applicability of any other regulations.

II. HOURLY AND ANNUAL EMISSION RATES

For Emission Units: the pound per hour emission rates will be those that are emitted during each individual Operating Scenario. The tons per year emission rates, if applicable, will be those found in the OS Summary section. Further details will be provided in subsequent sections.

For Batch Plants: The pound per hour emission rates for Table A pollutants will be determined by dividing the emissions in pounds for each step by the minimum step time in hours. The tons per year emission rate will be based for each individual Hazardous Air Pollutants (HAP) on the annual air contaminant emissions listed for the Batch Plant as a whole.

III. AIR CONTAMINANTS REPORTED BELOW THEIR REPORTING THRESHOLDS FOR PRECONSTRUCTION PERMITS

The following must be included, when necessary, as an Applicable Requirement, "The maximum emission rates of any other air contaminants not listed in the Facility Specific Requirements must be below the Reporting Threshold in N.J.A.C. 7:27-8, Appendix I".

IV. AIR CONTAMINANTS REPORTED BELOW THEIR REPORTING THRESHOLDS FOR OPERATING PERMITS

Air contaminants emitted below reporting thresholds are not included in compliance plans except for the following:

> When an air contaminant is emitted below its Reporting Threshold and the equipment is subject to a RACT requirement, the compliance plan must include both the RACT requirement and confirmation that the contaminant is emitted below the reporting threshold. For example, if a piece of equipment was allowed a VOC emission rate of up to 3.5 lb/hr pursuant to NJAC 7:27-16.16 and emitted VOC at a rate below its reporting threshold, the compliance plan would include the following two requirements: 1) VOC < =3.5 lb/hr; and 2) VOC < = 0.05 lb/hr.

V. TABLE A AIR POLLUTANTS OF NJAC 7:27-8 AND NJAC 7:27-22 (NOT INCLUDING HAP OR TXS) EMITTED ABOVE THEIR REPORTING THRESHOLDS

This section applies to the pollutants that are listed in Table A of both NJAC 7:27-8 and NJAC 7:27-22. Additionally, for Preconstruction Permits, any 112 (r) contaminant; any stratospheric ozone depleting

substance, or any greenhouse gas except carbon dioxide (CO2) is also a Table A air contaminant. These air pollutants will be labeled as "Table A" pollutants for the remainder of this section.

For Preconstruction Permits, list in the compliance plan those Table A pollutants emitted at a rate greater than or equal to 0.05 pounds per hour (lb/hr).

For Operating Permits, list in the compliance plan those Table A pollutants emitted at a rate greater than or equal to 0.05 pounds per hour (lb/hr).

When calculating tons-per-year to be included in the OS Summary section of the compliance plan, only include those Table A pollutants from those scenarios that are emitted at or above the 0.05 lb/hr reporting threshold.

Example 1: Boiler burning natural gas and Number 2 Fuel Oil under two separate operating scenarios

This Example is based on the attached two spreadsheets for a 5.0 million BTU/hr boiler that can either combust Number 2 fuel oil or natural gas. The boiler is able to burn only one fuel at any one time. The boiler can combust natural gas continuously (8,760 hours per year), but has a limit on the combustion of Number 2 Fuel oil of 1000 hours per year.

Listing of hourly air contaminant emission rate in the compliance plan:

For the natural gas combustion, only the hourly emission rates of NOx (0.49 lb/hr) and CO (0.41 lb/hr) would be included in the compliance plan since these are the emission rates above the reporting threshold.

For the Number 2 fuel oil combustion, the hourly emission rates of NOx (0.71 lb/hr), CO (0.18 lb/hr), PM (0.07 lb/hr), and sulfur dioxide (1.01 lb/hr) would be included in the compliance plan since these are above the reporting threshold.

Determination of tons per year (tpy) for each contaminant:

For NOx: The hourly emission rates for both natural gas and Number 2 fuel oil are above the reporting threshold. Therefore, the emission rates of both NOx emission rates should be used to determine tpy. The highest tpy is determined by assuming that Number 2 fuel oil is combusted up to its allowable annual operating level and natural gas is combusted the remainder of the year. The calculation is as follows:

[(1000 hr/yr) * (0.71 lb/hr)] + [(7760 hr/yr) *(0.49 lb/hr)] = 4512 lb/yr or 2.26 tpy

For CO: The hourly emission rates for both natural gas and Number 2 fuel oil are above the reporting threshold. Therefore, the emission rates of both air contaminants should be used to determine tpy. However, the hourly natural gas emission rate is higher than that of Number 2 Fuel Oil. The highest annual emission rate is determined by assuming that natural gas is combusted continuously and no Number 2 Fuel Oil is combusted. The calculation is as follows:

[(8,760 hr/yr) * (0.41 lb/hr)] = 3591 lb/yr or 1.8 tpy

For SO2: The hourly emission rate for natural gas combustion is below the reporting threshold and the hourly emission rate for Number 2 fuel oil combustion is above the reporting threshold.

Therefore, the Number 2 fuel oil emission rate is used at the maximum annual usage rate: The calculation is as follows:

[(1,000 hr/yr) * (1.01 lb/hr)] = 1,010 lb/yr or 0.51 tpy

For PM-10 and TSP: The hourly emission rate for natural gas combustion is below the reporting threshold and the hourly emission rate for Number 2 fuel oil combustion is above the reporting threshold. Therefore, the Number 2 fuel oil emissions are used at the maximum annual usage rate: The calculation is as follows:

[(1,000 hr/yr) * (0.07 lb/hr)] = 70 lb/yr or 0.04 tpy

For VOC: The hourly emission rates for both natural gas and Number 2 fuel oil combustion are both below the reporting threshold. Therefore, VOC emissions are not listed in the compliance plan.

Example 2: One coating line with the following VOC hourly emission rates
OS1 - Coating A for Line #1- 0.07 lb/hr, 6000 hours per year
OS2 - Coating B for Line #1- 0.03 lb/hr, 8760 hours per year
OS3 - Coating C for Line #1- 0.1 lb/hr, 4000 hours per year

Include the VOC mass emission rate from Coatings A and C in the compliance plan because the VOC emission rates for both Operating Scenarios are above the reporting threshold.

The VOC annual emissions in tons per year (tpy) would be calculated based on the operation of the Operating Scenarios for Coatings A and C, using worst case assumptions (i.e. operating limitations from which the highest TPY numbers would result) as follows:

(0.07 lb/hr * 4760 hr/yr) + (0.1 lb/hr * 4000 hr/yr) = 733.2 lb/yr or 0.367 tpy

The above calculation assumes that Coating C will be used at its maximum annual rate, since it will emit the highest VOC level. It then assumes that Coating A will be applied the remainder of the year.

NOTE: Because Operation Scenario 2 emits VOC below the Reporting Threshold, the emissions are not included in the compliance plan and would not be included in the calculations for annual emissions.

Example 3: Tanks that store a VOC
For storage tanks, the emission rate in tons per year should be listed in the compliance plan if it is determined that the maximum VOC emission rate during any 60-minute period is equal to or greater than the reporting threshold of 0.05 lb/hr. In addition, the worst-case emission rates (in lb/hr) from any tank must be included in the compliance plan.

Example 4: Batch Plant
For any Table A contaminants that are emitted above the reporting threshold, as determined by dividing the emissions in pounds for each step by the minimum step time in hours, the pounds per hour and tons per year should be listed in the compliance plan.

VI. INDIVIDUAL HAZARDOUS AIR POLLUTANTS

To determine if an individual HAP is over the threshold level listed in N.J.A.C. 7:27-17, for each piece of equipment take an arithmetic sum for worst case annual emission rates in pounds per year (lb/yr). This would take into account all operating restrictions, such as maximum annual operating hours, maximum annual throughput, etc. Compare this maximum annual emission rate with the HAP reporting threshold in pounds per year.

For Preconstruction Permits: if the emission rate of the individual HAP is equal to or greater than the reporting threshold, this individual HAP emission rate must be listed in lb/hr, in each operating scenario, and in tons per year, in the OS Summary.

For Operating Permits: if the emission rate of the individual HAP is greater than the reporting threshold, this individual HAP emission rate must be listed in lb/hr, in each operating scenario, and in tons per year, in the OS Summary.

Total HAP emission rates are discussed in Section VIII.

NOTE: There is no deminimus "lb/hr" level for individual HAP. Consequently, all individual HAP emissions are included when determining worst case emission rates.

Example 1: A piece of equipment emits an individual HAP over three operating scenarios

Toluene is emitted from a piece of equipment in three different operating scenarios with the allowable annual operating hours, as follows:

OS1: 0.1 lb/hr up to 8760 hours per year
OS2: 0.5 lb/hr up to 3000 hours per year
OS3: 1.0 lb/hr up to 1000 hours per year

Determine the worst case annual toluene emission rate for the piece of equipment by taking the arithmetic sum as follows:

(0.1 lb/hr * 4760 hr/yr) + (0.5 lb/hr * 3000 hr/yr) + (1.0 lb/hr * 1000 hr/yr) = 2976 lb/yr;

The worst case annual toluene emission rate of 2976 lb/yr was determined by assuming that the operating scenarios with the highest hourly emission rates would be operating at their maximum allowable operating hours.

Since the reporting threshold of toluene is 2000 lb/yr (and 2976 lb/yr > 2000 lb/yr), the toluene emission rate in lb/hr should be listed in each Operating scenario and the toluene emission rate in tons per year should be listed in the OS Summary of the compliance plan.

Example 2: Storage Tank that stores one or more HAP

List in tons per year in the compliance plan's OS Summary section each individual HAP whose maximum annual emission rate is above the reporting threshold. The worst-case HAP lb/hr emission rate should be listed in the Operating Scenarios in the Compliance Plan.

Example 3: Batch Plants

For each individual HAP that is emitted, the maximum annual emission rate in pounds per year will be based on the annual air contaminant emissions listed for the Batch Plant as a whole. Any individual HAP above the reporting thresholds must be listed in the Compliance Plan. The batch plant "tons per year" number will be compared to the Reporting Thresholds, without consideration of the number of pieces of equipment in the Batch Plant or any other criteria.

VII. TXS IN PRECONSTRUCTION PERMITS

Include in the individual Operating Scenarios those TXS emitted at a rate greater than or equal to 0.01 pounds per hour (lb/hr) as per N.J.A.C. 7:27-17. When calculating tons-per-year to be included in the OS Summary section of the compliance plan, only include those TXS pollutants from those scenarios that are emitted at or above the 0.01 lb/hr reporting threshold.

NOTE: For Operating Permits, evaluate TXS in the same manner as individual HAP (see Section VI).

Example 1: Air stripper used for groundwater cleanup and the contaminants in groundwater are benzene and chloroform

Example 1 Assumption - A single operating scenario with the following emissions - Benzene maximum hourly emission rate of 0.03 lb/hr and chloroform maximum hourly emission rate of 0.005 lb/hr.

Only list the hourly and annual emissions of benzene in the compliance plan since the benzene emission rate is over the TXS reporting threshold (0.03 lb/hr >= 0.01 lb/hr) and the chloroform emission rate is below the TXS reporting threshold (0.005 lb/hr <= 0.01 lb/hr).

Example 2: Tank that stores one or more TXS

For storage tanks, the emission rate in tons per year and the worst-case emission rate in lb/hr should be listed in the compliance plan if it is determined that the emission rate of any individual TXS is equal to or greater than the reporting threshold of 0.01 lb/hr. The applicant must include documentation to support any claim that the emission rates are below the reporting threshold.

Example 3: Batch Plant

For any individual TXS that are emitted above the reporting threshold, as determined by dividing the emissions in pounds for each step by the minimum step time in hours, the pounds per hour and tons per year must be listed in the compliance plan.

NOTE: If a source emits an air contaminant that is identified as both a TXS in Table 1 at N.J.A.C. 17.3 and a HAP in Table 2 at N.J.A.C. 17.9, two separate emissions reporting thresholds must be considered when determining if the emissions must be reported in the permit application. Specifically, an air contaminant identified as both a TXS and an HAP is subject to reporting thresholds for emissions measured in pounds per hour and pounds per year. The 0.01 pounds per hour set forth in 17.9 for TXS and the pounds per year set forth in Table 2 for HAPS are independent reporting thresholds, and must not be regarded as alternative reporting mechanisms.

VIII. TOTAL HAZARDOUS AIR POLLUTANTS

Total Hazardous Air Pollutants emission rates (in tons per year-tpy) must be an arithmetic sum of those individual HAPs emitted above their reporting thresholds.

Example - Piece of equipment with two operating scenarios, each of which can operation up to 4380 hour per year, emitting HAPs as follows:

OS1: Benzene at 200 lb/yr, Acetaldehyde at 500 lb/yr, toluene at 1600 lb/yr
OS2: Benzene at 300 lb/yr and Acetaldehyde at 200 lb/yr, toluene at 1600 lb/yr

Arithmetic sum of each individual HAP, along with a comparison to the reporting thresholds:

Total Benzene = 500 lb/yr > 400 lb/yr (Benzene reporting threshold)
Total Acetaldehyde = 700 lb/yr < 1800 lb/yr (Acetaldehyde reporting threshold)
Total Toluene = 3200 lb/yr > 2000 lb/yr (Toluene reporting threshold)

Benzene and toluene lb/hr and ton per year emissions should listed:

OS1
Benzene - 200 lb/yr ÷ 4380 hr/yr = 0.046 lb./hr
Toluene - 1600 lb/yr ÷ 4380 hr/yr 0.365 lb./hr

OS2
Benzene - 300 lb/yr ÷ 4380 hr/yr = 0.068 lb./hr
Toluene -1600 lb/yr ÷ 4380 hr/yr = 0.365 lb./hr

OS Summary
Benzene - 200 lb/yr + 300 lb/yr = 500 lb/yr =0.25 TPY
Toluene - 1600 lb/yr + 1600 lb/yr = 3200 lb/yr =1.6 TPY
HAP (Total) - 0.25 TPY + 1.6 TPY = 1.85 TPY

Therefore, benzene and toluene are emitted above reporting threshold and would be listed individually in the Operating Scenarios and OS Summary of the Compliance Plan.

Total HAP emissions would be listed as 1.85 tons per year

For Batch Plant, sum up all of the individual HAP emitted above their reporting thresholds.

IX. CONTAMINANTS NOT SPECIATED IN THE APPENDICES OF N.J.A.C. 7:27-8

For Preconstruction Permits: Odor causing compounds that may result in noncompliance with N.J.A.C. 7:27-8.3 (j) or N.J.A.C. 7:27-5, such as hydrogen sulfide, may be listed in the compliance plan at any emission rate if they would cause such noncompliance. This is pursuant to N.J.A.C. 7:27-8.4(k)2 that states, "The source operation may, under normal operations, emit the air contaminant in an amount which may result in noncompliance with the air pollution odor provisions at N.J.A.C. 7:27-8.3(j) and N.J.A.C. 7:27-5".

For Preconstruction Permits: Non-odor causing compounds, as a policy decision, use "greater than or equal to 0.05 lb/hr" as a reporting threshold until N.J.A.C. 7:27-8 addresses the situation.

X. CONTAMINANTS NOT SPECIATED IN THE APPENDIX OF N.J.A.C. 7:27-22

Pursuant to NJAC 7:27-22, Appendix, Table A, reporting threshold of 0.05 pounds per hour shall apply to any air contaminant (except CO_2), other than hazardous air pollutants (HAPs) or the criteria pollutants in Table A, that the facility has the potential to emit in a quantity greater than or equal to 100 tons per year.